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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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09/863,885

05/22/2001

Eric Hauptfear

MTC 6721.1;
39-21(51835)

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SENNIGER POWERS LEAVITT AND ROEDEL
ONE METROPOLITAN SQUARE
16TH FLOOR
ST LOUIS, MO 63102

EXAMINER

ZUCKER, PAUL A

ART UNIT

PAPER NUMBER

1621

DATE MAILED: 05/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

09/863,885

Examin r

Paul A. Zucker

Applicant(s)

HAUPFEAR ET AL.

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1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-64,96-100,218-325 and 327-399 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,2,6-43,52-64,96-100,231-233,242-325 and 327-399 is/are allowed.
- 6) ☒ Claim(s) 44-46,218-229 and 231-233 is/are rejected.
- 7) ☒ Claim(s) 5, 47-51, 230 and 234- 241 is/are objected to.
- 8) ☒ Claim(s) 1-347 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11.
- 4) ☒ Interview Summary (PTO-413) Paper No(s). 11.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Current Status

1. This action is responsive to Applicants' amendment of 27 February 2003 in Paper No 9.
2. Receipt and entry of Applicants' amendment is acknowledged.
3. Applicant's addition of new claims 348- 399 is acknowledged.
4. Applicant's cancellation of claims 3-4, 65-95, 101-217 and 326 is acknowledged.
5. Claims 1,2, 5-64, 96-100, 218-325 and 327-399 remain pending.
6. The claim objections set forth in paragraphs 3 and 4 of the previous Office Action in Paper No 8 is withdrawn in response to Applicant's amendment.
7. The rejections under 35 USC § 112, second paragraph, set forth in paragraphs 6 - 10 of the previous Office Action in Paper No 8 are withdrawn in response to Applicants' amendment.
8. The rejection under 35 USC § 102 (b) set forth in paragraph 11 of the previous Office Action in Paper No 8 is withdrawn in response to Applicants' amendment and remarks.
9. The rejection under 35 USC § 103 (a) set forth in paragraph 12 of the previous Office Action in Paper No 8 is withdrawn in response to Applicants' amendment and remarks. Applicants' remarks with regard to this rejection are therefore rendered moot.
10. The Examiner called Applicants' representative, as requested, before issuing this action. Applicants' representative, however, informed the Examiner that the

supplemental amendment that Applicants wished to submit was not ready for submission and that Applicants wished to submit a supplemental amendment reinstating inadvertently cancelled allowed claims.

New Rejections and Objections

Claim Rejections - 35 USC § 112

11. Claims 219-226 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The limitation "secondary fraction" in line 2 of claim 219 is undefined. The scope of Applicants' claimed process is therefore impossible to determine. Claim 219 and its dependents are therefore rendered indefinite.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

12. Claims 218, 227-229 and 231-233 are rejected under 35 U.S.C. 102(b) as being anticipated by Pelyva et al (UK 2,224,505 A 05-1990).

Instantly claimed is a process for making an N-(phosphonomethyl)glycine product which comprises:

- a. Oxidizing N-(phosphonomethyl) iminodiacetic acid in the presence of a catalyst;

- b. Precipitating the N-(phosphonomethyl)glycine product to produce N-(phosphonomethyl)glycine crystals;
- c. Separating the mother liquor; and
- d. Recycling the mother liquor to the oxidation reaction.

Pelyva discloses (Page 8, line 25 – page 58, page 10, line 11) a process for the oxidation of N-(phosphonomethyl) iminodiacetic acid to produce N-(phosphonomethyl) glycine with hydrogen peroxide in the presence of sulfuric acid as catalyst. Pelyva further discloses (Page 9, lines 3-23) distilling a portion of the reaction mixture, crystallization of N-(phosphonomethyl)glycine from the reaction mixture by cooling, washing the crystals with water, making up the volume of the distillate with the wash water (presumably containing some N-(phosphonomethyl)glycine corresponding to the instantly claimed primary crystallization fraction) and returning the waste solution to the reaction mixture. The vaporative removal of reaction solvent in an oxidation reaction using recycled reaction waste is considered to meet the limitations of instant claim 228. The amount of N-(phosphonomethyl) iminodiacetic acid remaining in the primary oxidation product (Cf. claim 228) is considered to be inherent in the process disclosed by Pelyva. Claims 218, 227-229 and 231-233 are therefore anticipated by Pelyva. (NOTE: For the purposes of this rejection the secondary fraction of claim is considered to be the distillate).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

13. Claims 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Franz (US 3,950,402 04-1976).

Instantly claimed is a process for making an N-(phosphonomethyl)glycine product which comprises:

- a. Oxidizing N-(phosphonomethyl) iminodiacetic acid in the presence of a catalyst;
- b. Precipitating the N-(phosphonomethyl)glycine product to produce N-(phosphonomethyl)glycine crystals;
- c. Separating the mother liquor; and
- d. Evaporating the mother liquor to produce N-(phosphonomethyl)glycine crystals and a second mother liquor.

Franz teaches (Column 5, lines 32-58) a process for the oxidation of N-(phosphonomethyl) iminodiacetic acid to produce N-(phosphonomethyl)glycine with hydrogen peroxide in the presence of sulfuric acid as catalyst. Franz also teaches (Column 4, line 58- column 6, line 40) the use of platinum, palladium and rhodium catalysts for the oxidation reaction in the presence of oxygen gas. Franz teaches (Column 3, lines 47-53) the precipitation by cooling and recovery by filtration of N-(phosphonomethyl)glycine crystals to produce a primary mother liquor. Franz further

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teaches (Column 3, lines 55-55) the production of additional crystals from the mother liquor upon continued cooling to produce a secondary mother liquor.

The difference between the process taught by Franz and that instantly claimed is that the secondary mother liquor is produced in the process of Franz by continued cooling. In the instant case, however, the secondary mother liquor is produced by evaporation of the primary mother liquor.

Franz, however, further teaches (Column 6, lines 57-61 and column 5, lines 59-61) reduction of the volume of the reaction product mixture by evaporation under reduced pressure and crystallization to produce N-(phosphonomethyl)glycine crystals. Franz teaches temperature of 78°C-17.5°C are obtained which overlaps with the instantly claimed range.

One of ordinary skill in the art would have been motivated to replace the second cooling step with the evaporation of solvent as taught by Franz since the evaporative process would allow more complete recovery of the N-(phosphonomethyl)glycine crystals and would have been less expensive (in terms of time and electricity) than continued cooling of the primary mother liquor.

Thus the instantly claimed process would have been obvious to one of ordinary skill in the art. There would have been a reasonable expectation of success since Franz teaches the suitability of the evaporative process for the production of N-(phosphonomethyl)glycine crystals.

Claim Objections

14. Claim 5 is objected to because of the following informalities: Claim 5 contains a missing character symbol on line 3. Applicants should remove this symbol and replace it with the appropriate character (presumably "0"). Appropriate correction is required.
15. Claims 47-51, 230 and 234- 241 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Allowable Subject Matter

16. Claims 1, 2, 6-43, 52-64, 96-100, 231-233, 242-325 and 327-399 are allowed. The following is a statement of reasons for the indication of allowable subject matter:
- The closest prior art of record Pelyva et al (UK 2,224,505 A 05-1990) and Franz (US 3,950,402 04-1976) neither disclose nor fairly suggest the instant claimed use of adiabatic evaporative crystallization or the other instantly claimed process limitations.

Conclusion

17. Claims 1,2, 5-64, 96-100, 218-325 and 327-347 remain pending. Claims 44-46, 218-229 and 231-233 are rejected. Claims 5, 47-51, 230 and 234- 241 are objected to. Claims 1, 2, 6-43, 52-64, 96-100, 231-233, 242-325 and 327-399 are allowed.

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18. The prior art made of record and not relied upon is considered pertinent to

Applicant's disclosure : Hershman (US 3,969,398 07-1976). Hershman discloses a process using a fixed bed of carbon similar to that claimed in independent claims 96, 291, 292, 294, 296, 310 and 315 but does not disclose or fairly suggest, for example, catalyst recycle, controlling the liquid phase holdup to total bed volume ratio or O₂ partial pressure at the fixed-bed exit or the other limitations of the indicated claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Zucker whose telephone number is 703-306-0512. The examiner can normally be reached on Monday-Friday 7:00-3:30.

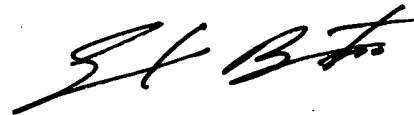
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 703-308-4532. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-4556 for regular communications and 703-308-4556 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1235.

Paul A. Zucker, Ph.D.
Patent Examiner
Technology Center 1600

May 16, 2003



ACTING FOR

Johann Richter, Ph.D., Esq.
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